

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. – 3. (Cancelled)

4. (Currently Amended) ~~The storage device of claim 3, further comprising A~~
storage device comprising:
a probe having a tip, the tip being electrically conductive;
a storage medium, the storage medium being electrically conductive and
electrically contacted to the tip, wherein the tip is adapted to form a dent in the storage medium,
wherein the tip is adapted to cooperate with the storage medium to provide a
variable resistance based on whether the tip is engaged in the dent,
wherein the variable resistance has a first resistance value in response to the tip
being engaged in the dent, and wherein the variable resistance has a second resistance value in
response to the tip being engaged on a surface of the storage medium but not in the dent, the first
resistance value being less than the second resistance value;
a sensing device to detect current flow through a signal path associated with the
variable resistance between the probe and the storage medium; and
circuitry to indicate a first data state in response to detecting a first ~~detected~~
current value corresponding to the first resistance value, and to indicate a second data state in
response to detecting a second current value corresponding to the second resistance value.

5. (Currently Amended) The storage device of claim [[1]] 4, wherein a first surface
area of the tip is electrically contacted to the storage medium in response to the tip not being
engaged in a dent, and
wherein a second, larger surface area of the tip is electrically contacted to the
storage medium in response to the tip being engaged in a dent.

6. (Cancelled)

1 7. (Currently Amended) ~~The storage device of claim 6, further comprising A~~
2 storage device comprising:
3 a probe having a tip, the tip being electrically conductive;
4 a storage medium, the storage medium being electrically conductive and
5 electrically contacted to the tip, wherein the tip is adapted to form a dent in the storage medium,
6 wherein the tip is adapted to cooperate with the storage medium to provide a
7 variable resistance based on whether the tip is engaged in the dent;
8 circuitry to apply a voltage to the probe, wherein the variable resistance is
9 associated with a signal path between the probe and the storage medium; and
10 an electrical conductor, the storage medium being between the electrical
11 conductor and the probe.

1 8. (Currently Amended) The storage device of claim 7, wherein the electrical
2 conductor is electrically connected to a ground potential, the storage device further comprising a
3 sensing circuit to detect a current flow through the probe, ~~variable resistance~~ signal path, storage
4 medium, and electrical conductor that is dependent upon the variable resistance.

1 9. (Currently Amended) The storage device of claim ~~[[1]]~~ 4, further comprising
2 additional probes each having an electrically conductive tip electrically contacted to the storage
3 medium,
4 wherein the storage medium has plural storage cells, the tips of at least some of
5 the probes to form dents in respective storage cells,
6 wherein each tip cooperates with the storage medium to provide a variable
7 resistance based on whether the tip is engaged in a dent.

1 10. (Currently Amended) The storage device of claim ~~[[1]]~~ 4, wherein the tip is
2 heatable to form the dent.

1 11. (Cancelled)

1 12. (Currently Amended) The system of claim [[11]] 16, wherein the variable
2 resistance has a first resistance value in response to the tip of a respective probe being engaged
3 on the surface of the electrically conductive layer but not engaged in a dent, and wherein the
4 variable resistance has a second, smaller resistance value in response to the tip being engaged in
5 a dent.

1 13. (Currently Amended) The system of claim 12, wherein a first surface area of
2 [[the]] each tip is electrically contacted to the storage medium in response to the tip being
3 engaged on a surface of the electrically conductive layer but not being engaged in a dent, and
4 wherein a second surface area of [[the]] each tip is electrically contacted to the
5 storage medium in response to the tip being engaged in a dent,
6 the second surface area being larger than the first surface area.

1 14. (Currently Amended) The system of claim [[11]] 16, wherein the probe
2 comprises a nanotechnology probe.

1 15. (Cancelled)

1 16. (Currently Amended) ~~The system of claim 15, wherein the storage device further~~
2 ~~comprises~~ A system comprising:

3 a processor; and

4 a storage device coupled to the processor, the storage device comprising:

5 a probe having an electrically conductive tip;

6 a storage substrate having an electrically conductive layer electrically
7 contacted to the tip,

8 the tip adapted to form dents in the electrically conductive layer,

9 the tip to interact with the electrically conductive layer to provide a signal
10 path having a variable resistance based on whether the tip is engaged in a dent;

11 at least a second probe having an electrically conductive tip, the tip of the
12 second probe adapted to form dents in the electrically conductive layer,

13 wherein the tip of the second probe is adapted to interact with the
14 electrically conductive layer to provide a second signal path having a variable resistance based
15 on whether the tip of the second probe is engaged in a dent; and

16 sensors to detect current flows through the signal paths.

1 17. (Original) The system of claim 16, wherein each sensor is adapted to detect a first
2 current in response to a corresponding signal path having a first resistance, and to detect a second
3 current in response to a corresponding signal path having a second resistance.

1 18. – 19. (Cancelled)

1 20. (Currently Amended) The method of claim [[19]] 21, further comprising moving
2 the storage medium with respect to the probe during each of the write and read operations.

1 21. (Currently Amended) ~~The method of claim 19, further comprising:~~ A method of
2 storing data in a storage device, comprising:
3 writing to storage cells of a storage medium by forming dents in selected ones of
4 the storage cells with a probe, wherein the storage medium is formed at least in part by an
5 electrically conductive material;
6 electrically contacting an electrically conductive tip of the probe to the storage
7 medium;
8 during a read, detecting a resistance value of a signal path having variable
9 resistance based on whether the electrically conductive tip of the probe is engaged in a dent in
10 the storage medium,
11 wherein detecting the resistance value of the signal path comprises:
12 detecting a first resistance value in response to the electrically conductive
13 tip of the probe being engaged in a dent; and
14 detecting a second, larger resistance value in response to the electrically
15 conductive tip of the probe being engaged on a surface of the storage medium but not in a dent;
16 indicating a first storage state in response to detecting the first resistance value;
17 and
18 indicating a second storage state in response to detecting the second resistance
19 value.